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UNIVERSITY OF ALBERTA

QUANTITY SURCHARGES AND CONSUMER INFERENCES

BY

CAREY LYNN HERBERT

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Master of Business Administration.

FACULTY OF BUSINESS

EDMONTON, ALBERTA

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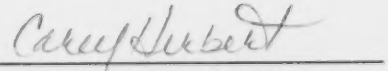

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ABSTRACT

The degree to which consumers infer that larger quantity packages correspond to lower unit prices, and the effect of the provision of unit price information on consumers' purchase decisions were assessed in ninety university students. Contrary to expectations, there was no strong evidence to indicate that consumers are guided by the belief that large quantity packages entail per unit savings over smaller quantity packages. Only a weak relationship was observed between subjects' self-reported beliefs that products sold in larger quantities per package represent better value than those sold in smaller quantities per package and inference-consistent responses. The provision of unit price information was found to significantly influence consumer preferences. In particular, consumers were more price sensitive when unit price information was provided in consistent units (i.e., the unit price of both alternatives was provided in the same units). Consumers were less price sensitive both when unit price had to be calculated from the item price and when unit price information was provided, but in inconsistent units.

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INTRODUCTION

For as many as 34% of products available in supermarkets, large size packages of a given product are priced at a per unit premium over smaller size packages of the same product.[1] Concurrently, evidence also suggests that many consumers believe that unit price decreases as package size increases.[2] Mandatory unit pricing display legislation, such as the Fair Packaging and Labelling Act in the United States, is aimed, at least in part, at eliminating this discrepancy between what consumers believe and what is actually practiced in retail pricing. Such legislation has met with a largely negative reaction from retailers, who argue that quantity standardization - not unit pricing legislation - is the more appropriate approach.[3] Meanwhile, consumers continue to face chaotic quantity variations, sporadic and often ineffective unit pricing programs, and to make purchase decisions based on a decision making strategy that may be unreliable for more than one-third of their purchase decisions. It is important, consequently, to determine: (i) whether consumers do, in fact, infer that larger sizes correspond to lower unit prices; and (ii) whether consumers' purchase decisions are significantly influenced by the provision of unit price information.

QUANTITY SURCHARGES

Quantity surcharging has been defined as a practice wherein a given package size of a

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[1]Widrick (1979a).

[2]Granger and Billson (1972).

[3]McGoldrick and Marks (1985).

product is offered at a higher price per unit of measure than any smaller package size of the product, when quality and packaging are held constant.[4] It has been argued, therefore, that quantity surcharges or quantity price premiums are "the converse of the volume discount."[5] Widrick (1979a) suggests three possible explanations of quantity surcharging: human error, promotional discounts on smaller, more competitive package sizes, and conscious pricing policy. As a conscious pricing strategy, quantity surcharging can arguably be viewed as a legitimate tool to, for example, promote conservation during shortages. It has been suggested that:

> "[p]ricing energy (e.g., natural gas) at a quantity surcharge could help reduce demand. Quantity surcharge would have the advantage of making the item-to-be-conserved widely available in small quantities at a low price. However, heavy users would be charged progressively higher rates for each unit consumed. Used in this way, quantity surcharge can be a legitimate means to promote conservation and responsible consumption."[6]

This argument, however, does not apply to most packaged goods sold in supermarkets. Consumers could easily undermine such efforts simply by purchasing numerous smaller size packages. Further, quantity surcharging is generally held to be socially sub-optimal because it promotes the irresponsible use of natural resources.[7] Widrick explains that:

> "[t]his observation is based on the belief that generally it requires more resources to produce two containers of one quart capacity each than it does to product one container of two quart capacity. In addition, these two containers of one quart capacity consume additional scarce resources

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[4]Widrick (1979a); Widrick (1979b).

[5]Nason and Della Bitta (1983), p. 40.

[6]Widrick (1979a), pp. 99-100.

[7]Widrick (1979a).

in the disposal process."[8]

Other researchers have noted that quantity surcharging is justifiable on two grounds. First, if larger sizes are less popular and subsequently remain on the shelf longer, it could be argued that they cost more to retail, and that pricing them at a per unit premium is justifiable. Second, it is not unreasonable for retailers to attempt to remain competitive, and keep prices as low as possible on brands or sizes most demanded by consumers.[9] Widrick's (1979b) examination of the incidence of quantity surcharging has formed the basis for much of the research that has since been conducted in the area; his investigation yielded the following findings:

- individual product categories have different percentages of incidents of quantity surcharging
- individual supermarket chains have different percentages of incidents of quantity surcharging
- individual brand owners have different percentages of incidents of quantity surcharging
- the more brand sizes available, the more likely the incidence of quantity surcharging
- sizes that form non-integer ratios have a significantly higher percentage of quantity surcharging
- most instances of quantity surcharging (almost 90%) were not due to a promotional special on any size.

Walker and Cude (1984) have further found that quantity surcharging is as likely to occur in large stores as in smaller stores.

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[8]Widrick (1979a), p. 100.

[9]McGoldrick and Marks (1985).

It must be noted that a deliberate, conscious pricing policy on the part of retailers and manufacturers is only one of a number of possible explanations for the phenomenon of quantity surcharging. There are a number of pricing strategies which may result in unintentional quantity surcharging. For example, the turnaround rate on given products or sizes may guide pricing strategy. The higher the turnaround, the lower the required profit margin on a given product or size, and subsequently the less likely it is that that product will be priced at a premium. To the extent that there is faster turnaround on smaller package sizes - which have been referred to by both researchers and retailers as "the more competitive" sizes - the likelihood of larger package sizes being priced at a quantity premium is greater.

On a more theoretical level, there is the issue of the most appropriate level or amount of quantity surcharging which must be addressed. The quantity surcharging studies conducted to date implicitly suggest that quantity surcharging is somehow an inappropriate pricing practice. In fact, many retailers have themselves stated that in principle, they do not believe products should be priced at a quantity premium.[10] The question becomes one of determining what the most appropriate level of quantity surcharging is. In accordance with the large-size belief, should larger packages have lower unit prices; that is, should the most appropriate amount of quantity surcharging be 0%? Or is it more reasonable to argue that pricing strategies incorporate factors such as production costs, storage costs, turnaround rates, and number and strength of

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[10]McGoldrick and Marks (1985).

competitors for any particular product or size, and that subsequently, there is no size-based pricing rule, so the most appropriate level of quantity surcharging is 50%? Furthermore, does quantity surcharging to any extent become less inappropriate if direct unit price information is provided to consumers? Although larger package sizes have traditionally been introduced as the less expensive "economy-size", consideration must be given to the most appropriate reference point from which to judge pricing strategies.

Supply-Side Analysis: Surplus Extraction

Researchers who examine quantity surcharging from a supply-side perspective have traditionally argued that unit price variations are a result of attempts to extract consumer surplus; the supermarket is viewed as wielding monopolistic-like power to engage in price discrimination among heterogeneous consumers.[11] Other researchers have considered the supermarket to be a profit-maximizing producer/seller whose prices reflect production and retailing costs. For instance, Walden (1988) found that the degree of quantity surcharging varies with packaging type and material, and with retail storage costs. Specifically, he found that there is an increased probability of observing quantity price premiums for those products which are packaged in boxes, bottles, and bags as compared with products packaged in either jars or cans. Further, there is a greater probability of observing quantity surcharges with products that must be cooled, frozen, or refrigerated, than with shelf stored products.

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[11]Adams and Yellen (1976); Salop (1977); Mussa and Rosen (1978); Spence (1980); Moorthy (1984); and Oren, Smith and Wilson (1984).

The analysis of the price-discriminating supermarket engaging in quantity surcharging has fuelled concerns about whether quantity surcharging amounts to a deceptive pricing practice. McGoldrick and Marks have stated that "in situations where, through lack of standardized quantities or unit price information, most consumers are unable to detect quantity surcharges, it is difficult not to regard them as a form of deceptive pricing."[12] A form of deceptive advertising which Gardner (1975) has classified as "claim-belief interaction" refers to the exploitation of consumers' inferences. Claim-belief-interaction is a form of deceptive advertising wherein:

> "an advertisement or advertising campaign interacts with the accumulated attitudes and beliefs of the consumer in such a manner as to leave a deceptive belief or attitude about the product or service being advertised, without making either explicit or implied deceptive claims. For example, suppose detergent manufacturers discovered that just putting red and blue crystals in some detergents resulted in a significant number of housewives attributing more cleaning power to those detergents with crystals than those without. Therefore, the simple statement that Brand X had blue crystals would be deceptive even though no claims about increased cleaning power were made."[13]

It has been subsequently argued by Widrick that if a manufacturer, wholesaler or retailer attempts to engage in quantity surcharging in order to exploit consumers' belief that large quantities correspond to lower unit prices, it is engaging in deceptive pricing.[14]

Demand-Side Analysis: Self-Selection

The implementation of price-discrimination presupposes that differences in consumer

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[12]McGoldrick and Marks (1985), p. 55.

[13]Gardner (1975), p. 42.

[14]Widrick (1979b).

demand can be determined by supermarkets. Many price-discrimination models emphasize differences in consumer storage costs.[15] In Walden (1988), it is argued that consumers who are constrained by high storage costs strongly prefer smaller sizes and are subsequently less price sensitive, whereas consumers who face low storage costs have no strong size preference and are subsequently more price sensitive. By this argument, a strategy of smaller size products with higher unit prices is targeted for those consumers with high storage costs and a strategy of larger size products with lower unit prices is targeted for those consumers with low storage costs. Conversely, Gerstner and Hess (1987) argue that consumers with low storage costs are willing to trade off cheap storage for reduced transportation costs (i.e., fewer trips to the store), and are therefore willing to pay a premium for larger size products. The researchers further point out that "package size variety is not created to fool customers but to allow them to trade off storage costs for shopping costs, and prices are set to induce self-selection by the appropriate consumers."[16] Facilitating the optimal trade-off between storage costs and shopping costs is a strong argument for the provision of unit price information.

Unit Pricing

In their attempts to make value comparisons between products, consumers must evaluate the price, the size and the quality of each product.[17] Such comparisons are easier to

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[15]Walden (1988); Gerstner and Hess (1987).

[16]Gerstner and Hess (1987), p. 513.

[17]McGoldrick and Marks (1985).

make when unit price information is provided. "When a good is unit-priced, its price is expressed in terms of the cost per unit of measure of the product in addition to its total price."[18] When unit price information is not directly provided - when only the item price is expressed - consumers would find it significantly easier to calculate unit prices from item prices if weights and volumes were standardized. To date, legislation aimed at such standardization encompasses a very small range of products. Included among the reasons not to enforce the standardization of weights and volumes are the resultant costs manufacturers would be forced to incur, and the restriction such enforcement would place on product differentiation.[19] An alternative to standard quantities is the direct provision of unit price information. Expanding upon the finding by Russo et. al. (1975) that the provision of unit price lists leads to a noticeable shift from high unit price purchases to low unit price purchases, Russo (1977) stated that "the crux of the issue is whether unit pricing's benefits to consumers can justify its costs to retailers."[20] The results of the study indicate that consumer expenditures decrease by 1% when unit price information is posted on shelf tags, and by 3% when unit price information is also displayed on an organized unit price list. The decrease in consumer expenditures is the result of a shift towards the purchase of lower unit priced items which occurs when consumers are exposed to unit price information. Additionally, store brands experienced a 5% increase in market share as a result of the provision of the unit price lists. It is argued that the

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[18]Houston (1972), p. 51.

[19]McGoldrick and Marks (1985).

[20]p. 193.

benefits to both consumers and retailers justify the cost of providing unit price information.[21]

The direct provision of unit price information, however, is an alternative not without its own difficulties. At the operational level, there are difficulties inherent in accurately communicating unit price information to consumers. Nason and Della Bitta (1983) found four types of what they refer to as "tag deficiencies". First, certain products have no standard unit of measurement across brands, complicating comparisons between brands. Second, the unit price information may be missing altogether. Third, the unit price information may be present, but misplaced. Fourth, the unit price information presented may be inaccurate. The researchers found that at least one deficiency was present in over 40% of the products they examined. Even if unit price information is accurately communicated to consumers, the possibility exists that not all consumers will make use of the information. In their study of the influence of income and education on the degree to which consumers utilize unit price information, Isakson and Maurizi (1973) found that the provision of unit price information has the greatest effect on middle income/education consumers . The researchers further theorize that: (i) a possible explanation for the under-utilization of unit price information by low income/education consumers is their inability to understand or correctly use the information in their purchase decisions; and that (ii) the most likely reason high income/education consumers do not employ unit price

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[21]Russo (1977).

information is that they have a higher opportunity cost of time.[22] Additionally, unit price legislation is met with resistance by retailers, who already oppose current levels of governmental interference in their operations. Small grocers in particular are opposed to unit pricing, arguing that unit price lists would obscure their stock. In their examination of unit-pricing programs, McGoldrick and Marks (1985) note that some retailers feel that since "the issue was not one of the important points to emerge from regular group discussions with customers, it was of more importance to advocates of consumerism than to customers themselves."[23] Even customers have reason to be critical of unit price legislation. According to Nason and Della Bitta (1983), unit price legislation has been largely inadequate, due primarily to the four aforementioned deficiencies.

Clearly, then, one of the most important and controversial social issues arising from the quantity surcharging phenomenon is its implication for public policy. Granger and Billson (1972) and Nason and Della Bitta (1983) have noted that there clearly exists in the minds of consumers the expectation that larger packages have smaller unit prices. Concurrently, Widrick (1979a and 1979b) and others have found that the opposite holds for as many as 34% of products. The significance of this discrepancy between what pricing policy consumers believe is being practiced and what is, in fact, practiced is noted in Russo et. al. (1975), who found that the provision of unit price lists leads to a

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[22]Isakson and Maurizi (1973).

[23]p. 55.

noticeable shift away from high unit price purchases to low unit price purchases. Specifically, these findings suggest that in the absence of unit price information, consumers make sub-optimal purchase decisions. Furthermore, Russo (1977) argues that the benefits to both consumers and retailers justifies the cost of implementing a unit price display program. What appears to be a clear implication for public policy, however, becomes less clear in light of the finding of Nason and Della Bitta (1983) that tag deficiencies rendered unit price display legislation ineffective for 40% of the products they examined. Additionally, McGoldrick and Marks (1985) found that there was widespread resistance among retailers to unit price legislation, which arguably suggests that retailers may not be committed to reducing tag deficiencies. In the absence of unanimity on the public policy issue, then, quantity surcharging still potentially poses a major problem for consumers.

CONSUMER INFERENCES

In reference to what Granger and Billson (1972) termed the "large economy size" belief, Nason and Della Bitta (1983) note that "evidence... [suggests] that a sizeable proportion of consumers employ a generalized volume discount heuristic when evaluating package size alternatives".[24] Essentially, there appears to exist the widespread expectation that larger package sizes have lower unit prices. It is from this type of inference that purchase decision strategies stem.[25] Cude and Walker (1984) have indicated that:

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[24]p. 50.

[25]Johnson and Levin (1985).

> "[d]ue to increasing numbers of products, brands, and sizes for sale in the marketplace, consumers frequently experience difficulty in making value-price comparisons. As an alternative to the time-consuming job of securing and acting upon accurate price-per-unit information, they may adopt a simple purchase decision rule such as larger sizes are less expensive per unit."[26]

It is argued that this adoption of purchase strategies "allows simplification of purchase decisions since information overload can occur if the consumer uses all available information that is potentially relevant for the choice."[27] As a purchase decision strategy, this larger-size rule has serious implications in light of the evidence which indicates that larger package sizes are often priced at a per unit premium over smaller package sizes.[28] This evidence suggests that the increasing incidence of quantity surcharging may be rendering the larger-size rule unreliable as a purchase decision strategy. The issue has become whether a lowest unit price strategy will supplant the larger-size rule as the optimal purchase decision strategy for many consumers.

Lowest Unit Price Strategy versus the Larger-Size Rule

It must, of course, be noted that economic gain is only one of several factors consumers might consider in choosing their optimal shopping strategy. The opportunity cost of the time spent shopping may well vary across different consumers. For instance, some consumers may find that the psychic rewards from finding the lowest price outweigh the

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[26]pp. 287-288.

[27]Nason and Della Bitta (1983), p. 50.

[28]Consumer Bulletin (December, 1957); Consumer Reports (February, 1965), (September, 1966), (February, 1967), and (January, 1969); Cude and Walker (1984); Widrick (1979a); and Widrick (1979b).

opportunity cost of their time. For many consumers, however, the opportunity cost of the time they spend shopping will be significant, and it has subsequently been argued that:

> "[s]ince it appears surcharges occur most often when price comparisons are difficult, the benefit received from detecting them may be less than the cost of the time required to use unit pricing.... Although periodic use of unit pricing may be worthwhile for products purchased frequently, it may seldom offer an economic advantage over the larger-size rule when the value of time is considered."[29]

That consumers continue to adhere to the larger-size rule despite the growing incidence of quantity surcharging suggests not only that they are not processing all the information being given them, but also that as quantity variations increase, and unit price calculation subsequently becomes increasingly difficult, purchase decision strategies based on unit price calculation become increasingly sub-optimal.

HYPOTHESES

Numerous studies have specifically demonstrated that when consumers' attention is drawn to unit price information there is a noticeable shift away from purchases of high unit priced items and towards purchases of low unit priced items.[30] Such findings yield the following hypotheses:

1A Consumers are more price sensitive in scenarios with displayed unit price information than in scenarios with missing unit price

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[29]Cude and Walker (1984), p. 288 and p. 295.

[30]Isakson and Maurizi (1973); Russo (1977).

information.

Research has shown that there exists a great deal of variation in package sizes and unit prices across brands, thereby making inter-brand comparisons difficult.[31] When unit price information is not directly provided, it has been found that there is a greater incidence of quantity surcharging among products for which unit price calculation is more difficult than among products for which unit price calculation is somewhat easier.[32] Specifically, consumers are more likely to encounter quantity surcharging when products are offered in many sizes and package size comparisons form non-integer ratios than when products are offered in only a few sizes and package size comparisons form integer ratios.[33] In light of the above findings, as well as the findings of Nason and Della Bitta (1983), which suggest that tag deficiencies may be present for as many as 40% of products, it is hypothesized that as unit price calculations become increasingly difficult, consumers become increasingly disinclined to engage in such calculations:

1B Consumers are more price sensitive in scenarios with unit price information provided in consistent units than in scenarios with unit price information provided in inconsistent units.

Finally, in order to identify what purchase decision strategies consumers use, it is important to determine whether consumers do, in fact, employ a volume discount

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[31]Gerstner and Hess (1987).

[32]Walker and Cude (1984); Widrick (1979b).

[33]Ibid.

heuristic as argued by some researchers.[34] If some consumers do utilize the larger-size rule in order to simplify their purchase decision making process, then it could be argued that such consumers rely more on the rule and less on unit price information for making purchase decisions than do consumers who do not utilize the larger-size rule. It is subsequently hypothesized that:

> **2** Consumers who infer that large quantity packages entail per unit price savings over smaller quantity packages are less price sensitive than consumers who maintain no size-based inferences.

The survey questionnaire administered in the present study was developed to test: (i) whether variations in the way unit price information is communicated to consumers alter price sensitivity, and (ii) whether consumers' size-based inferences alter price sensitivity. For each of twenty-eight scenarios, subjects were asked to compare two purchase alternatives (one large package size and one small package size), and to indicate their preference for either alternative by marking a point on a line. The greater the proximity of the mark to either endpoint, the stronger the subject's preference for one alternative over the other. The way in which the unit price information was displayed was varied across scenarios, as were the unit prices themselves. Because it was hypothesized that consumers become increasingly price sensitive as unit price determination becomes easier (Hypothesis 1), the effect of unit price difference and unit price display on subjects' preferences was analyzed.

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[34]Granger and Billson (1972); Nason and Della Bitta (1983).

In order to determine the effect of subjects' inferences on price sensitivity (Hypothesis 2), two tests - which will be more completely described in the Method section - were conducted. One test involved a self-reported measure, and the other test involved manipulation of the price/size relationship, which yielded three correlation conditions: positive correlation (as size increases, unit price increases); negative correlation (as size increases, unit price decreases); and no correlation. In his study of consumers' inferences with respect to missing information, Johnson (1989) found that manipulating the correlation between the missing attribute and one of the presented attributes does affect the degree to which inferences influence judgment. It was predicted that subjects who rely on size-based inferences would be less influenced by stated price across all correlation conditions relative to subjects who do not rely on such inferences. Based on Johnson's (1989) findings, it was further predicted that subjects who believe that unit prices tend to be lower for large quantity packages would find support for this belief in the price/size combinations of the negative correlation condition. As such, it was expected that subjects would rely more heavily upon their size-based inferences (i.e., would be less price sensitive) in the negative correlation condition than in either the positive or the no correlation conditions.

METHOD

SUBJECTS

Ninety university students completed self-administered survey questionnaires in which

they were asked to evaluate frozen orange juice concentrate purchase alternatives. Only individuals familiar with purchasing orange juice were asked to participate in the experiment. The names of those who participated in the experiment were entered into a draw, the winner of which received the sum of $40.00.

EXPERIMENTAL VARIABLES

Dependent Variable

Subjects were given a graded paired comparison task in order to test the influence of unit price displays on their size preference (large versus small) of orange juice. For each scenario, one alternative was large and one was small, and subjects were asked to indicate the degree to which they preferred one alternative over the other by placing a mark on a 160 millimetre line, anchored by "Strongly Prefer A" on the left, "Strongly Prefer B" on the right, and "Prefer Neither A Nor B" in the centre. For each scenario, the larger package was randomly assigned to Choice A or Choice B, and the dependent variable was the distance in millimetres of the mark from the left end of the scale when the large package appeared on the right (i.e., as Choice B), and the distance in millimetres of the mark from the right end of the scale when the large package appeared on the left (i.e., as Choice A). In short, the dependent variable represents subjects' preference for the larger size.

Independent Variables - Within Subjects

The variables of interest were the differences between the unit prices of the large and small sizes and the type of unit price display. For each scenario, the size alternatives were a small (355 ml) can or a large (474 ml) can. Unit prices were manipulated such that the unit price of the large can was either more than, less than, or the same as the unit price of the small can. Because unit price dictated item price, variations in the item prices were determined by, and subsequently paralleled, variations in relative unit prices. The three Unit Price Difference levels are presented in Table 1.

There were four types of unit price displays. In the "Missing" display, unit price information was provided for neither alternative. In the "Same" display, the unit prices of both the large and small alternatives were provided and were expressed in millilitres. In the "Different (Small)" display, the unit prices of both alternatives were provided, but the unit price of the large can was expressed in millilitres, while the unit price of the small can was expressed in ounces. In the "Different (Large)" display, the unit prices of both alternatives were again provided, but the unit price of the small can was expressed in millilitres, and the unit price of the large can was expressed in ounces. In sum, the twelve scenarios were derived from the 3 x 4 design based on three levels of unit price and four levels of unit price displays.

Initially, item price, package size, and unit price were the only attributes included in each choice set. Three concerns arose from this initial design: (i) the concern that as one of

only three attributes, unit price information would be particularly salient to subjects, thereby implicitly encouraging them to pay more attention to unit price (i.e., encouraging them to be less reliant on their inferences) than might otherwise be the case; (ii) the concern about the lack of experimental realism insofar as consumers arguably process more than just price and size information (eg., quality) in their orange juice purchase decision process; and (iii) the concern that unobserved inferences about missing attributes (eg., "low price must mean poor quality") might be influencing subjects' preferences. As a result of the aforementioned concerns, the decision was made to incorporate Pulp (Regular and Reduced), Acidity (Regular and Reduced) and Grade (A and C) into the experimental design.

Independent Variables - Between Subjects

According to Hypothesis 2, consumers who employ a volume discount heuristic in their purchase decision process are less price sensitive than consumers who employ no such heuristic. In the first test of this hypothesis, the price/size relationship was manipulated in sixteen additional scenarios to yield three between subjects conditions: (i) a positive correlation condition in which the smaller packages were cheaper; (ii) a negative correlation condition in which the larger packages were cheaper (i.e., consistent with the volume discount heuristic); and (iii) a no correlation condition in which the larger package was equivalently cheaper and more expensive. Specifically, for treatment 1 (the positive correlation condition, n=31), the large purchase alternative was 15% more expensive in eight of the additional sixteen scenarios, and 25% more expensive in the

other eight additional scenarios; for treatment 2 (the negative correlation condition, n=28), the large purchase alternative was either 15% less expensive or 25% less expensive; and for treatment 3 (the no correlation condition, n=31), the large purchase alternative was either 25% more expensive or 25% less expensive. Manipulating the price/size relationship through the sixteen context variables yielded price/size correlations of r=-0.605 for the negative correlation condition and r=0.605 for the positive correlation condition. An additional benefit of incorporating these sixteen context scenarios is that they allowed for manipulation of the Pulp, Acidity and Grade attributes. By varying the levels of Pulp, Acidity and Grade in the context scenarios, attention was presumably drawn to them across all twenty-eight scenarios. These factors were systematically varied for the sixteen context scenarios according to a main-effects fractional factorial design. For the twelve experimental scenarios, each of the additional attributes was held constant at the first level reported above. Since the sixteen context variables were included for the purposes of manipulating the prize/size correlation and adding experimental realism, these scenarios were not included in the experimental analysis.

A second test of Hypothesis 2 involved having subjects report the degree to which they believe large quantity packages represent better value than smaller quantity packages by marking a point on a 160 millimetre line. Multivariate Analysis of Covariance (MANCOVA) was used to determine whether there was a significant Unit Price Difference*Unit Price Display interaction when variance due to this "Value" question

was accounted for.

In short, the twelve experimental scenarios were embedded in a larger twenty-eight scenario (twelve experimental and sixteen context) design in order to test the effect of the price/size correlation on inferential beliefs. The twenty-eight scenarios were presented in random order. The complete twenty-eight scenario experimental design is presented in Table 2. The three survey questionnaires have been included as Appendices 1, 2 and 3.

Additional Measures

On the last page of the questionnaire, subjects were asked demographic questions as well as questions about their perceptions about the value, convenience and desirability of larger versus smaller packages (See Appendix 4 for the Demographics/Perceptions portion of the survey questionnaire). For each of the three perception questions, subjects were asked to place a mark on a 160 millimetre line representing the degree to which they feel that, relative to smaller packages, larger packages: (i) are better values; (ii) are more convenient; and (iii) are generally more desirable. Prior to the experiment, subjects were informed of each the various attributes and their levels. Package sizes for both size alternatives were expressed in millilitres as well as ounces; as such, all necessary information was provided for subjects to make all the unit price calculations if they were so inclined. Finally, subjects were strongly urged to peruse all twenty-eight scenarios before making any evaluations "in order to become more familiar with the

range of possible attributes" (See Appendix 5 for the Instruction page which accompanied the survey questionnaire).

RESULTS

SAMPLE CHARACTERISTICS

The mean age of the subjects was 23.9 years (sd=5.8). Forty-two respondents were female and forty-eight were male. Of the ninety respondents, eighty-eight indicated that they were either undergraduate students or graduate students. The undergraduate and graduate student respondents were approximately equally distributed across treatments (Chi-Square=0.011, df=2). See Tables 3, 4 and 5 for sample characteristics across treatments. The average number of cans purchased per month across the sample was 6.2 cans, and 46% of the subjects reported that they were the principal shopper for their household. The subjects' self-reported perceptions of the value, convenience and desirability of large quantity packages are presented in Table 6. None of the demographic or perception variables were significantly related to the correlation conditions, suggesting that subjects were successfully randomized across treatments and that the correlation manipulation did not influence self-reported perceptions. It is interesting to note that there appears to have been a slight preference among the subjects for the smaller alternative overall; in all but the "large is 20% less expensive" unit price difference conditions, the mean ratings for the large alternative (on a scale of 160) are less than 80.

HYPOTHESIS TESTS

The effect of the type of unit price display on price sensitivity is presented in Figure 1. The solid line in Figure 1 represents ratings of alternatives for which unit prices were displayed in the same units. That the difference between the mean response when the large alternative is 20% less expensive and the mean response when the large alternative is 20% more expensive is greatest for this line indicates that subjects' mean ratings (i.e., their preferences) were most strongly influenced by unit price information provided in consistent units than by the other types of unit price displays. Univariate results of Multivariate Analysis of Variance (MANOVA) confirm that the Unit Price Difference-Unit Price Display interaction [hereinafter referred to as the UPDifference-UPDisplay interaction] is significant. See Table 7 for the Full Manova results. Bonferroni follow-up tests reveal that this interaction is significant for Same versus Different (Small), $F_{(2,174)}=6.809$, $p<0.001$, and Same versus Missing, $F_{(2,174)}=5.019$, $p<0.008$ (the Bonferroni cut-off was 0.0083). See Tables 8 through 11 for the Pairwise Follow-up tests.

In short, the findings indicate that across the different unit price levels, the UPDifference-UPDisplay interaction on subjects' preferences was significant for the contrasts of Same versus Missing UPDisplay and Same versus Different(Small) UPDisplay. Since the finding that the two-way interaction is significant for the Same versus Missing UPDisplay conditions can be attributed to significantly greater variation in mean responses for the Same unit price display condition than for the Missing display

condition (see Figure 1), the first hypothesis - hypothesis 1A, that consumers are more price sensitive in scenarios with displayed unit price information than in scenarios with missing unit price information - is supported. Further, since the two-way interaction was not significant for the contrasts of Missing versus either of the inconsistent unit UPDisplay conditions, hypothesis 1B - that consumers are more price sensitive in scenarios with unit price information provided in consistent units than in scenarios with unit price information provided in inconsistent units - is also supported. This latter finding suggests that providing consumers with unit price information in inconsistent units is tantamount to providing no direct unit price information at all.

Another finding that warrants consideration is the finding that there appears to be a slight UPDisplay effect for the two inconsistent unit UPDisplay conditions. In Figure 1, the Different (Large) line is higher than the Different (Small) line for each of the UPDifference levels. Although the UPDiff*UPDisplay interaction is not significant for the comparison of the Diff(L) and Diff(S) displays, it is interesting that the large alternative received slightly higher ratings overall in the Diff(L) condition than in the Diff(S) condition. In the Diff(L) condition, the unit price of the large alternative was expressed in ounces, with package size of both alternatives and the unit price of the small alternative all expressed in millilitres. Intuitively, it would seem that subjects would prefer the alternative in which package size and unit price are both expressed in millilitres, and that perhaps the subjects would feel that they were being deceived if package size was provided in millilitres and unit price in ounces. The findings, however,

suggest that the opposite holds. Overall, subjects gave the large alternative higher ratings when its package size was provided in millilitres and its unit price was provided in ounces, and gave the large alternative lower ratings when the unit price of the small package was expressed in ounces. Perhaps this finding suggests that the subjects are more familiar and more comfortable with imperial rather than metric measures, and subsequently were less wary of unit prices expressed in ounces than those expressed in millilitres.

In this experiment, two tests were conducted in order to determine the extent to which declining price sensitivity can be attributed to size-based inferences. First, it is relatively more likely that size-based inferences will occur in the negative correlation condition than in either the positive or the no correlation conditions. Second, subjects who indicated that they believe that larger quantity packages are generally better values for their money than smaller quantity packages are likely to believe that there exists a negative relationship between unit price and package size, and are more likely to rely on such size-based inferences in their purchase decision making processes.

For the first test, a significant UPDifference-UPDisplay-Correlation Condition interaction would support the argument for size-based inferences. This interaction is not significant; $F_{(12,522)}=1.41$, $p<0.16$. A priori expectations were that the greatest differences would be noted between the Same and Missing Unit Price Display conditions. The inconsistent unit conditions were included in order to determine what effect, if any, they had on

subjects' preferences, but provided no strong results, and may have weakened the overall MANOVA results. In light of the a priori belief that treatment effects, if any, would be strongest in the Same versus Missing comparison, and of the significant UPDiff*UPDisplay*Correlation Condition interaction for Same versus Missing, $F_{4,174)}=2.70$, $p<0.04$ (see Table 10), further consideration of the three-way interaction is warranted.

Table 12 indicates the mean responses across the three Unit Price Difference levels for the Same and Missing Unit Price Displays across each of the three treatments. The greater the range of responses, the greater the price sensitivity in that condition. The difference between the range of the responses in the Same UPDisplay condition and the range of the responses in the Missing UPDisplay condition is greater for the positive and negative correlation conditions than for the no correlation condition. Since the range for the Same UPDisplay conditions is comparable across all three treatments, the difference between the positive and negative correlation conditions and the no correlation condition can be attributed to the substantially larger range in the Missing UPDisplay condition in the no correlation condition. This finding suggests that when unit prices were missing, subjects were more price-sensitive in the no correlation condition than in either the positive or negative correlation conditions. It was predicted that the more subjects relied on their size-based inferences, the less price sensitive they would be, and the less they relied on their inferences, the more price sensitive they would be. It was further predicted that in scenarios in which the price-size correlation was manipulated, and this

manipulation was in the same direction as the subjects' inferences (i.e., larger is cheaper), subjects would be implicitly encouraged to rely on their inferences, and would subsequently be less price sensitive. Table 12 suggests that this prediction was correct in part, but further that correlation manipulation in either direction reduced price sensitivity in the Missing UPDisplay condition. In sum, when direct unit price information was missing, it appears that subjects relied more heavily on their size-based inferences in both the positive and negative correlation conditions than in the no correlation condition.

The second test of Hypothesis 2 utilizes subjects' self-reported inferences of the extent to which a negative relationship exists between unit price and package size. Subjects were asked to complete the phrase "Generally speaking, I believe that products sold in larger quantities per package are _____ than products sold in smaller quantities per package" by marking a point on a 160 millimetre line anchored by "Much better values for my money" on the left, "Much worse values for my money" on the right, and "Neither better nor worse values for my money" in the centre. It was previously predicted that those subjects who believe that larger packages are better value for their money would be more likely than other subjects to infer that larger packages entail per unit price savings over smaller package sizes. This prediction is supported by Multivariate Analysis of Covariance (MANCOVA). The UPDifference-UPDisplay interaction, which was significant at $p<0.01$ when variance due to the value responses was unaccounted for, becomes insignificant ($F_{(6,81)}=1.088$) when Value is a covariate.

In short, the hypothesis (Hypothesis 2) that consumers who infer that large quantity packages entail per unit price savings over small quantity packages are less price sensitive than consumers who have no such size-based inferences is supported.

DISCUSSION

The provision of unit price information significantly influenced subjects' comparisons. This finding gains strength in light of the significant amount of information the subjects were processing - due primarily to the inclusion of the three additional attributes. Responses for scenarios in which unit price information was displayed and expressed in consistent units was significantly different from the responses for the Missing Unit Price Display scenarios and the responses for the Different (Small) scenarios. Responses for scenarios in which unit price information was missing were not significantly different from those responses with the Different (Large) and Different (Small) conditions, thereby confirming that providing unit price information in inconsistent units is equivalent to providing no direct unit price information at all. As predicted, subjects were less price sensitive when unit price became more difficult to calculate, even though the item price of each alternative was expressed in all scenarios.

The results for Hypothesis 2 suggest that unit pricing display effects can be attributed to size-based inferences. There are a number of factors which lend additional support to the evidence for size-based inferences. For example, the design of the Value question was such that low scores represent the belief that large sizes are better values for one's

money. The mean response to the Value question was 43.27 (out of 160), suggesting that many consumers likely do employ a generalized volume discount heuristic. Furthermore, the mean responses to the Convenience and Desirability questions - which were of the same design as the Value question - were 71.34 and 66.03, indicating that the low scores on the Value question are not likely to be attributable to scale usage bias. While it is possible that the use of an embedded design may have reduced subjects' reliance on their inferential beliefs - likely due in part to the increase in the information processing load, and in part to the decrease in the relative importance of price information as additional attributes are incorporated - the finding that UPDisplay effects can still be attributed to size-based inferences emphasizes the strength of the impact of such inferences on the purchase decision process.

Furthermore, with respect to Hypothesis 2, it must be recognized that the two tests conducted do not measure the same phenomenon. The test in which subjects reported the degree to which they feel that large packages represent better values than smaller packages, and Multivariate Analysis of Covariance (MANCOVA) results confirm that the UPDifference*UPDisplay interaction becomes insignificant when the variance due to the "Value" responses is accounted for is a test of whether subjects' previous experience, knowledge, and beliefs had an impact on their preference for the large alternative. On the other hand, the test in which subjects were assigned to one of three treatments, and the significance of the UPDifference*UPDisplay*Correlation Condition interaction was determined was a test of whether manipulating the correlation condition altered subjects'

preference for the large alternative. That the results of the both tests appear to support Hypothesis 2 suggests that subjects' previous experience and beliefs affected their preference for the large alternative, as did manipulating the price/size correlation.

Limitations of the Study

Notwithstanding the strength of some of the findings, the study has a number of limitations, particularly with respect to sample size, experimental design, and sampling procedures. With respect to sample size, there were approximately thirty subjects randomly assigned to each of the three treatment conditions. In light of the subtlety of some of the results, a larger sample size may have produced stronger results, to which any conclusions could be more confidently attributed. With respect to experimental design, within each choice set, attempts were made to increase experimental realism by, for example, adding more attributes. By such reasoning, it is possible that experimental realism would have been increased even further if numerous product categories had been incorporated into the choice sets as opposed to only one product category (i.e., frozen orange juice concentrate).

With respect to sampling procedures, it may be argued that the findings of the present study are not very generalizable to all consumers as a result of having drawn subjects from a population of students. Given that the mean age of the subjects was less than 24 years, the observed tendency among the subjects to prefer the smaller package overall might have been predictable for two reasons: (i) larger packages may be more than is

either necessary or desirable, and may result in waste if the product is only going to be consumed by one or two people, and not by an entire family; (ii) as students are commonly on fixed budgets, they may prefer smaller packages (even if such packages have higher unit prices) if it means paying a lower item price. It could, however, be argued that this tendency is not exclusive to students. It has been noted by some researchers that retailers set the most competitive prices on the smaller sizes because they are often the sizes most demanded by consumers.[35] Additionally, it could be argued that students - especially business students - participating in an experiment involving unit prices would be more careful than average consumers to determine which alternatives entail the lowest unit prices. By this reasoning, it could be concluded that the present findings actually understate the effect that various unit price displays would have on average consumers.

With respect to the experimental design, a related issue was the concern with learning effects; there was a possibility that subjects could "learn" that corresponding to a set of item prices in which unit price is missing, is the same set of item prices elsewhere in the questionnaire for which the unit prices are provided. It must be noted that at all times, subjects were capable of determining unit prices; they were provided with the millilitres-to-ounces conversion rate, and every choice set included the item price, and the package size. A priori, the question was not could they determine unit price, but would they make the effort required to determine it. This argument also applies to the concern about

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[35]McGoldrick and Marks (1985).

learning effects. Subjects could flip back and forth through the questionnaire and match all the Same UPDisplay conditions with the other UPDisplay conditions for each of the three UPDifference levels, but again the question was not could they do this, but would they go through the effort of doing it. Furthermore, since there were significant Display effects even in light of the possibility of learning effects, it must be concluded that subjects either did not learn that direct unit price information was available somewhere in the questionnaire for each choice set, or did learn this, but chose not to undertake the task of matching up the choice sets.

CONCLUSION

In sum, unit price information does influence consumer preferences, especially when such information is presented in consistent units. The price sensitivity of consumers is directly related to the ease with which unit price can be calculated. Specifically, consumers are more price sensitive when unit prices are easy to calculate, as compared to when unit prices must be calculated from item prices or from unit price information expressed in inconsistent units.

Future research in the area of quantity surcharging and the provision of unit price information might focus on four areas. First, many studies on the incidence of quantity surcharging are conducted in one geographical region across a limited number of retail grocers. It would be of interest to note if there are any regional differences between the large, national supermarket chains, or between the large chains and local retailers.

Second, it should be determined whether consumer segments differ with respect to the degree to which they effectively utilize unit price information. Specifically, factors such as education, income, race, and geographical location might influence how consumers employ unit price information. Third, longitudinal investigations of the costs of implementing and maintaining unit price display systems must be undertaken. Initial implementation costs as well as the impact on profits over time of shifting purchasing patterns and improved customer satisfaction as a result of unit price displays should be assessed. Fourth, overall consideration must be given by policy-makers to the most appropriate level of quantity surcharging before any judgment can be made on the current levels.

TABLE 1

RELATIVE UNIT PRICE LEVELS:	UNIT PRICE OF SMALL CAN	UNIT PRICE OF LARGE CAN
"Smaller is cheaper"	$0.0045/ml	$0.0055/ml
"Larger is cheaper"	$0.0055/ml	$0.0045/ml
"No difference"	$0.0050/ml	$0.0050/ml

TABLE 2

#	CHOICE SET	UNIT	ALTERNATIVE A			PRICE	ALTERNATIVE B		
			PULP	GRADE	ACID		PULP	GRADE	ACID
1	4	0	0	0	0	0	0	0	0
2	19	0	1	1	0	1	1	1	0
3	9	0	1	1	1	0	0	1	1
4	1	0	0	0	1	1	1	0	1
5	2	1	1	0	1	1	0	1	1
6	11	1	0	1	1	0	1	0	1
7	15	1	0	1	0	1	0	0	0
8	10	1	1	0	0	0	1	1	0
9	21	2	1	1	0	1	1	0	1
10	22	2	0	0	0	0	0	1	1
11	6	2	0	0	1	1	1	1	0
12	27	2	1	1	1	0	0	0	0
13	25	3	0	1	1	0	1	1	0
14	14	3	1	0	1	1	0	0	0
15	5	3	1	0	0	0	1	0	1
16	17	3	0	1	0	1	0	1	1
17	16	0	1	0	0	2	1	0	0
18	28	0	1	0	0	3	1	0	0
19	7	0	1	0	0	4	1	0	0
20	13	1	1	0	0	2	1	0	0
21	23	1	1	0	0	3	1	0	0
22	20	1	1	0	0	4	1	0	0
23	18	2	1	0	0	2	1	0	0
24	8	2	1	0	0	3	1	0	0
25	26	2	1	0	0	4	1	0	0
26	3	3	1	0	0	2	1	0	0
27	12	3	1	0	0	3	1	0	0
28	24	3	1	0	0	4	1	0	0

UNITS
0=Same
1=Diff(L)
2=Diff(S)
3=Missing

GRADE A
0=A
1=C

PRICE
0=UP(Large) is 15% more*
1=UP(Large) is 25% more*
0=UP(Large) is 15% less**
1=UP(Large) is 25% less**
0=UP(Large) is 25% less***
1=UP(Large) is 25% more***
2=UP(Large) is 20% less
3=UP(Large) = UP(Small)
4=UP(Large) is 20% more

PULP B
0=Reduced
1=Regular

ACID B
0=Regular
1=Reduced

PULP A
0=Reduced
1=Regular

ACID A
0=Regular
1=Reduced

GRADE B
0=A
1=B

* Treatment 1
** Treatment 2
*** Treatment 3

TABLE 3

CORRELATION CONDITION:	SAMPLE SIZE	AGE*
Positive	31	24.42 (5.87)
Negative	28	23.46 (5.26)
No Correlation	31	23.90 (6.45)
All Conditions	90	23.94 (5.85)

* **Mean (Standard Deviation)**

TABLE 4

CORRELATION CONDITION:	MALE	FEMALE	SAMPLE SIZE
Positive	17	14	31
Negative	13	15	28
No Correlation	18	13	31
All Conditions	48	42	90

TABLE 5

EDUCATION CATEGORY	TREATMENT 1	TREATMENT 2	TREATMENT 3	TOTAL
Undergraduate	20	18	21	59
Graduate	10	9	10	29
TOTAL	30	27	31	88

TABLE 6

CORRELATION CONDITION:	VALUE*	CONVENIENCE*	DESIRABILITY*
Positive	48.36 (32.07)	73.55 (44.21)	70.81 (33.00)
Negative	41.46 (28.99)	70.82 (38.11)	68.04 (31.82)
No Correlation	39.81 (27.98)	69.61 (46.88)	59.45 (32.62)
All Conditions	43.27 (29.66)	71.34 (49.93)	66.03 (32.52)

* **Mean (Standard Deviation)**

TABLE 7

FULL MANOVA

SOURCE*	SS	DF	MS	F	P
BETWEEN SUBJECTS:					
Treatment	18012.86	2	9006.43	1.45	0.24
Error	539368.53	87	6199.64		
WITHIN SUBJECTS:					
Unit	19704.83	3	6568.28	6.78	0.00
Unit-Treatment	5063.43	6	843.91	0.87	0.52
Error	253048.57	261	969.54		
Price	464511.93	2	232255.97	96.58	0.00
Price-Treatment	7207.61	4	1801.90	0.75	0.56
Error	418441.19	174	2404.83		
Unit-Price	14986.21	6	2497.70	3.51	0.00
Unit-Price-Treatment	12043.34	12	1003.61	1.41	0.16
Error	371871.34	522	712.40		

*Treatment = Correlation Condition
Unit = Unit Price Display
Price = Unit Price Difference

TABLE 8

PAIRWISE FOLLOW-UP TESTS: SAME VS. DIFF(L)

SOURCE*	SS	DF	MS	F	P
BETWEEN SUBJECTS:					
Treatment	6070.57	2	3035.28	0.81	0.45
Error	326834.96	87	3756.28		
WITHIN SUBJECTS:					
Unit	843.88	1	843.88	1.35	0.25
Unit-Treatment	1582.513	2	791.26	1.27	0.29
Error	54229.09	87	623.32		
Price	306857.42	2	153428.71	97.59	0.00
Price-Treatment	1974.80	4	493.70	0.31	0.87
Error	273562.13	174	1572.20		
Unit-Price	3797.28	2	1898.64	2.90	0.06
Unit-Price-Treatment	1103.65	4	275.91	0.42	0.79
Error	113869.45	174	654.42		

*Treatment = Correlation Condition
Unit = Unit Price Display
Price = Unit Price Difference

TABLE 9

PAIRWISE FOLLOW-UP TESTS: SAME VS. DIFF(S)

SOURCE*	SS	DF	MS	F	P
BETWEEN SUBJECTS:					
Treatment	9755.18	2	4877.59	1.44	0.24
Error	295563.57	87	3397.28		
WITHIN SUBJECTS:					
Unit	10668.22	1	10668.22	10.36	0.00
Unit-Treatment	493.54	2	246.77	0.24	0.79
Error	89563.28	87	1029.46		
Price	251130.58	2	125565.29	86.32	0.00
Price-Treatment	4808.47	4	1202.12	0.83	0.51
Error	253105.42	174	1454.63		
Unit-Price	11615.11	2	5807.55	6.81	0.00
Unit-Price-Treatment	3272.99	4	818.25	0.96	0.43
Error	148410.74	174	852.94		

*Treatment = Correlation Condition
Unit = Unit Price Display
Price = Unit Price Difference

TABLE 10

PAIRWISE FOLLOW-UP TESTS: SAME VS. MISSING

SOURCE*	SS	DF	MS	F	P
BETWEEN SUBJECTS:					
Treatment	12740.53	2	6370.27	1.97	0.15
Error	280803.85	87	3227.63		
WITHIN SUBJECTS:					
Unit	1610.00	1	1610.00	2.38	0.13
Unit-Treatment	629.25	2	314.63	0.46	0.63
Error	58977.43	87	677.90		
Price	268254.72	2	134127.36	94.31	0.00
Price-Treatment	3747.36	4	936.84	0.66	0.62
Error	247467.48	174	1422.23		
Unit-Price	8222.82	2	4111.41	5.02	0.01
Unit-Price-Treatment	8855.84	4	2213.96	2.70	0.04
Error	142538.82	174	819.19		

*Treatment = Correlation Condition
Unit = Unit Price Display
Price = Unit Price Difference

TABLE 11

PAIRWISE FOLLOW-UP TESTS: DIFF(L) VS. DIFF(S)

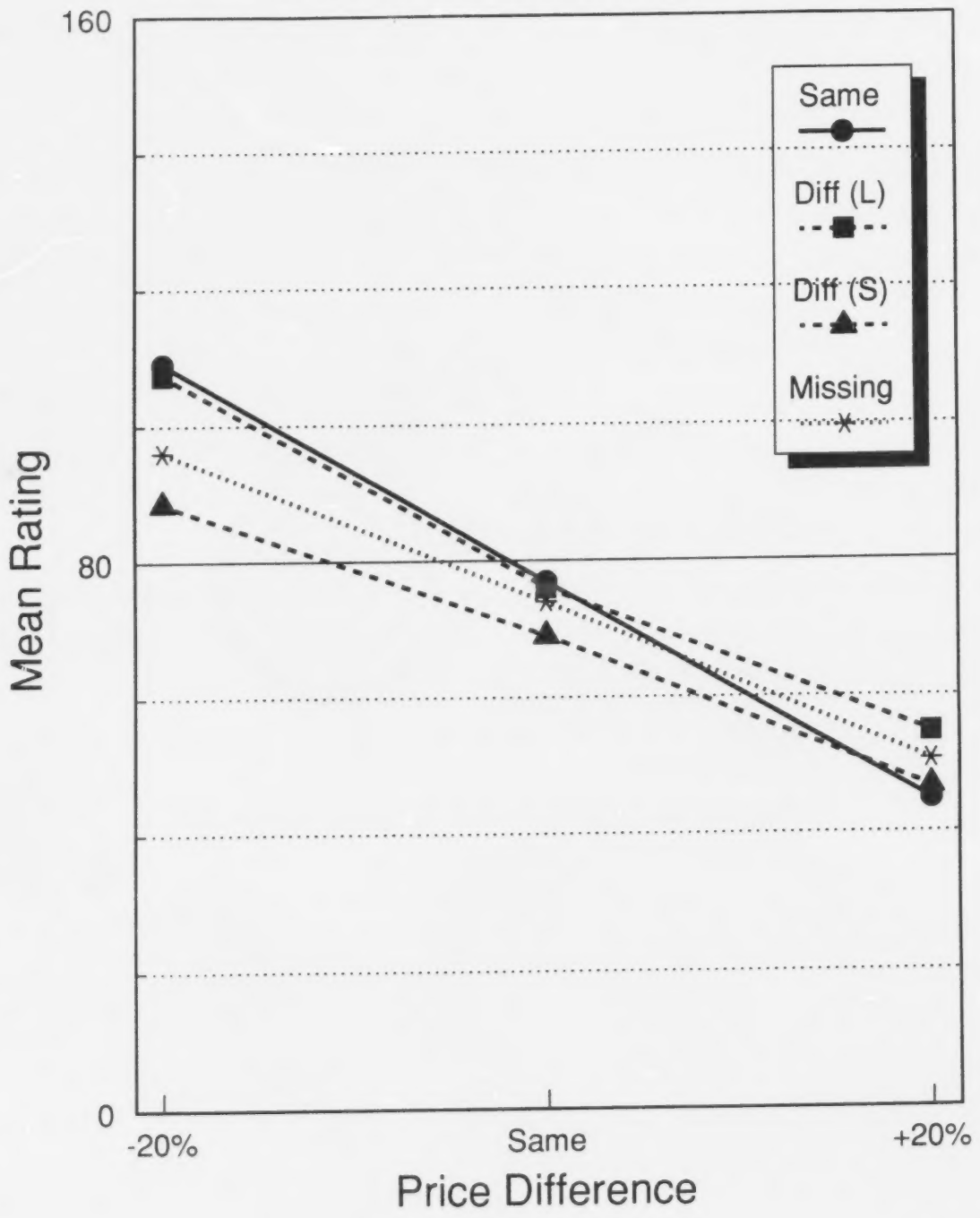
SOURCE*	SS	DF	MS	F	P
BETWEEN SUBJECTS:					
Treatment	5928.08	2	2964.04	0.81	0.45
Error	318109.22	87	3656.43		
WITHIN SUBJECTS:					
Unit	17513.00	1	17513.00	11.33	0.00
Unit-Treatment	3778.43	2	1889.21	1.22	0.30
Error	134526.59	87	1546.28		
Price	199095.46	2	99547.73	56.47	0.00
Price-Treatment	5352.13	4	1338.03	0.76	0.55
Error	306729.83	174	1762.82		
Unit-Price	3925.15	2	1962.58	3.65	0.03
Unit-Price-Treatment	1295.63	4	323.91	0.60	0.66
Error	93576.40	174	537.80		

*Treatment = Correlation Condition
Unit = Unit Price Display
Price = Unit Price Difference

TABLE 12

		PREFERENCE FOR LARGE (SCORE /160) (3 UP DIFF LEVELS)				
CORREL COND	**DISPLAY**	**-20**	**0**	**+20**	**RANGE (UP)**	**RANGE (DISPL)**
1 (POS)	**SAME**	114.5	79.4	45.1	69.4	33.2
	MISSING	94.4	76.4	58.2	36.2	
2 (NEG)	**SAME**	106.1	69.1	38.2	67.9	31.8
	MISSING	85.8	59.4	49.7	36.1	
3 (NONE)	**SAME**	106.0	81.6	30.7	75.3	12.3
	MISSING	107.0	84.7	44.0	63.0	

Figure 1: Effect of Unit Price Descriptions On Price Sensitivity



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APPENDIX 1

SURVEY QUESTIONNAIRE - TREATMENT 1 (POSITIVE CORRELATION)

Choice #1

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Reduced	Reduced
Unit Price	0.44 cents/ml	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B. You should mark some point on the left side of the scale if you prefer A, the right side if you prefer B, and the middle if the two choices are equally attractive (or attractive).

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #2

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	0.44 cents/ml	16.9 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #3

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #4

	Orange Juice A	Orange Juice B
Price	$2.55	$1.65
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	A	A
Acid	Regular	Regular
Unit Price	0.54 cents/ml	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #5

	Orange Juice A	Orange Juice B
Price	$2.55	$1.65
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #6

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	13.1 cents/oz	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #7

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #8

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	15.0 cents/oz	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #9

	Orange Juice A	Orange Juice B
Price	$1.65	$2.55
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Reduced	Reduced
Unit Price	0.46 cents/ml	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #10

	Orange Juice A	Orange Juice B
Price	$2.55	$1.65
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	A
Acid	Regular	Regular
Unit Price	16.1 cents/oz	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #11

	Orange Juice A	Orange Juice B
Price	$2.55	$1.65
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	16.1 cents/oz	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #12

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #13

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #14

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #15

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	C	A
Acid	Regular	Regular
Unit Price	0.44 cents/ml	16.9 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #16

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #17

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	C	C
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #18

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #19

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	C
Acid	Regular	Regular
Unit Price	0.56 cents/ml	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #20

	Orange Juice A	Orange Juice B
Price	$1.60	$2.61
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #21

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	0.56 cents/ml	13.1 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #22

	Orange Juice A	Orange Juice B
Price	$1.65	$2.55
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	A	C
Acid	Regular	Reduced
Unit Price	13.9 cents/oz	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #23

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	15.0 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #24

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #25

	Orange Juice A	Orange Juice B
Price	$2.55	$1.65
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #26

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #27

	Orange Juice A	Orange Juice B
Price	$1.65	$2.55
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	A
Acid	Reduced	Regular
Unit Price	13.9 cents/oz	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #28

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

APPENDIX 2

SURVEY QUESTIONNAIRE - TREATMENT 2 (NEGATIVE CORRELATION)

Choice #1

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Reduced	Reduced
Unit Price	0.56 cents/ml	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B. You should mark some point on the left side of the scale if you prefer A, the right side if you prefer B, and the middle if the two choices are equally attractive (or unattractive).

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #2

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	0.56 cents/ml	13.1 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #3

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #4

	Orange Juice A	Orange Juice B
Price	$2.19	$1.91
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	A	A
Acid	Regular	Regular
Unit Price	0.46 cents/ml	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #5

	Orange Juice A	Orange Juice B
Price	$2.19	$1.91
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #6

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	16.9 cents/oz	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #7

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #8

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	15.0 cents/oz	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #9

	Orange Juice A	Orange Juice B
Price	$1.91	$2.19
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Reduced	Reduced
Unit Price	0.54 cents/ml	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #10

	Orange Juice A	Orange Juice B
Price	$2.19	$1.91
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	A
Acid	Regular	Regular
Unit Price	13.9 cents/oz	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #11

	Orange Juice A	Orange Juice B
Price	$2.19	$1.91
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	13.9 cents/oz	0.54 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #12

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #13

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #14

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #15

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	C	A
Acid	Regular	Regular
Unit Price	0.56 cents/ml	13.1 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #16

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #17

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	C	C
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #18

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #19

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	C
Acid	Regular	Regular
Unit Price	0.44 cents/ml	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #20

	Orange Juice A	Orange Juice B
Price	$1.60	$2.61
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #21

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	0.44 cents/ml	16.9 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #22

	Orange Juice A	Orange Juice B
Price	$1.91	$2.19
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	A	C
Acid	Regular	Reduced
Unit Price	16.1 cents/oz	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #23

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	15.0 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #24

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #25

	Orange Juice A	Orange Juice B
Price	$2.19	$1.91
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #26

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #27

	Orange Juice A	Orange Juice B
Price	$1.91	$2.19
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	A
Acid	Reduced	Regular
Unit Price	16.1 cents/oz	0.46 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #28

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

APPENDIX 3

SURVEY QUESTIONNAIRE - TREATMENT 3 (NO CORRELATION)

Choice #1

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Reduced	Reduced
Unit Price	0.44 cents/ml	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B. You should mark some point on the left side of the scale if you prefer A, the right side if you prefer B, and the middle if the two choices are equally attractive (or unattractive).

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #2

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	0.44 cents/ml	16.9 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #3

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #4

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	A	A
Acid	Regular	Regular
Unit Price	0.44 cents/ml	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #5

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #6

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	13.1 cents/oz	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #7

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #8

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	15.0 cents/oz	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #9

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Reduced	Reduced
Unit Price	0.56 cents/ml	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #10

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	A
Acid	Regular	Regular
Unit Price	13.1 cents/oz	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #11

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	A	C
Acid	Reduced	Reduced
Unit Price	13.1 cents/oz	0.56 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #12

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #13

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #14

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Reduced	Regular
Grade	A	A
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #15

	Orange Juice A	Orange Juice B
Price	$1.56	$2.67
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	C	A
Acid	Regular	Regular
Unit Price	0.44 cents/ml	16.9 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #16

	Orange Juice A	Orange Juice B
Price	$1.95	$2.13
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	0.45 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #17

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Reduced	Reduced
Grade	C	C
Acid	Reduced	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #18

	Orange Juice A	Orange Juice B
Price	$2.13	$1.95
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #19

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	C	C
Acid	Regular	Regular
Unit Price	0.56 cents/ml	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #20

	Orange Juice A	Orange Juice B
Price	$1.60	$2.61
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.45 cents/ml	16.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #21

	Orange Juice A	Orange Juice B
Price	$2.67	$1.56
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	C
Acid	Reduced	Regular
Unit Price	0.56 cents/ml	13.1 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #22

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Reduced	Reduced
Grade	A	C
Acid	Regular	Reduced
Unit Price	16.9 cents/oz	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #23

	Orange Juice A	Orange Juice B
Price	$1.78	$2.37
Size	355 ml	474 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	15.0 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #24

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #25

	Orange Juice A	Orange Juice B
Price	$2.07	$2.00
Size	474 ml	355 ml
Pulp	Regular	Reduced
Grade	C	C
Acid	Regular	Reduced

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #26

	Orange Juice A	Orange Juice B
Price	$2.61	$1.60
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.55 cents/ml	13.5 cents/oz

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #27

	Orange Juice A	Orange Juice B
Price	$2.00	$2.07
Size	355 ml	474 ml
Pulp	Regular	Reduced
Grade	C	A
Acid	Reduced	Regular
Unit Price	16.9 cents/oz	0.44 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

Choice #28

	Orange Juice A	Orange Juice B
Price	$2.37	$1.78
Size	474 ml	355 ml
Pulp	Regular	Regular
Grade	A	A
Acid	Regular	Regular
Unit Price	0.50 cents/ml	0.50 cents/ml

Make a mark on the line below at the point which indicates how much you like Orange Juice A relative to Orange Juice B.

|----------|

Strongly Prefer A Prefer neither A nor B Strongly Prefer B

APPENDIX 4

SURVEY QUESTIONNAIRE - DEMOGRAPHICS/PERCEPTIONS SHEET

The following questions are designed to identify the profile of frozen orange juice concentrate buyers. The information from all survey questionnaires will only be reported in the aggregate; no individual responses will be reported. ***Complete*** *anonymity is assured, so your assistance in completing all of the following questions is greatly appreciated.*

29. How old are you? _____ years.

30. Are you: Male / Female (Please circle)

31. Please indicate the highest educational level you have attained:

_____ completed high school

_____ completed trade/technical school

_____ completed or expect to complete University undergraduate degree

_____ completed or expect to complete University graduate degree

32. Are you the principal grocery shopper in your household? Yes / No (Please circle)

33. On average, how many cans of frozen orange juice concentrate are purchased for your household every month? _____ cans.

For the remaining questions, please make a mark on the point on the line which most closely represents your opinion:

34. Generally speaking, I believe that products sold in larger quantities per package are _____ than those sold in smaller quantities per package:

<---------->

Much more Convenient | Neither more nor less Convenient | Much less Convenient

35. Generally speaking, I believe that products sold in larger quantities per package are _____ than those sold in smaller quantities per package:

<---------->

Much better values for my money | Neither better nor worse values for my money | Much worse values for my money

36. Generally speaking, I believe that products sold in larger quantities per package are _____ than those sold in smaller quantities per package:

<---------->

Much more Preferable | Neither more nor less Preferable | Much less Preferable

APPENDIX 5

SURVEY QUESTIONNAIRE - INSTRUCTION SHEET

INTRODUCTION

Thank you for agreeing to participate in this study. This survey questionnaire focuses on frozen orange juice concentrate, which can be purchased in a standard 355 ml (or about 12 oz) size, or in a larger 474 ml (or about 16 oz) size. In addition to size and price, there are a number of other attributes to consider: concentrates are available with either the regular amount of pulp or with reduced amounts of pulp; concentrates are available with either regular acidity or with reduced acidity; and some concentrates are made with Grade A (top quality) oranges, while other concentrates are made with Grade C (average quality) oranges.

You will be shown numerous pairs of orange juice concentrates, and will be asked to indicated the degree to which you prefer one concentrate over the other. **IT IS VERY IMPORTANT THAT YOU LOOK AT ALL 28 PAIRS BEFORE YOU FILL-IN THE SURVEY, SO THAT YOU WILL BECOME MORE FAMILIAR WITH THE RANGE OF POSSIBLE ATTRIBUTES.**

TEAR OFF AND RETURN THIS PORTION WITH THE COMPLETED SURVEY

NAME: _____

PHONE #: _____